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AUTHOR Smith, H. Wayne; And Others
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ABSTRACT

Terborg and Ilgen (1975) used attribution theory, equity theory, and sex-role stereotyping to explain the results of an investigation of occupational sex discrimination which found that male management student subjects differentiated in a stereotypical way between men and women in initial and second-year salaries and task assignments. A replication and partial extension of the Terborg and Ilgen study was conducted to investigate explicity, in a multivariate context, the relationship between stereotyping, equity theory, and attribution theory. The dimensions of leader performance, general satisfaction, reward allocation, skill attribution, and role comfort were explored in a simulated organizational context under analogue conditions. Undergraduate students (N=120) participated in a modified in-basket procedure in which the in-basket task was judged to be stereotypically male-oriented in nature. The results revealed that subjects delegated a high proportion of important assignments to male subordinates and assigned trivial issues to female subordinates. In addition, male subjects were found to favor male subordinates for promotions over equally performing female subordinates. Stereotyping was seen to influence the manner in which subjects processed problems, distributed authority, and allocated rewards. (NB)

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LEADERSHIP AND GENDER IN A SIMULATED ORGANIZATION

H. WAYNE SMITH

PHILLIPS PETROLEUM COMPANY

JANE L. WINER, CLAY E. GEORGE, AND RICHARD P. MCGLYNN

TEXAS TECH UNIVERSITY

RUNNING HEAD: LEADERSHIP AND GENDER

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H. Wayne Smith is Division Training Coordinator, Western E&P Division, Phillips Petroleum Company.

Clay E. George, Richard P. McGlynn, and Jane L. Winer are Professors, Department of Psychology, Texas Tech University.

ABSTRACT

In a simulated male-oriented task, male subordinates were delegated a high proportion of important assignments; females were assigned trivial issues. Male subjects favored male subordinates for promotion over equally performing females. Stereotyping was seen to influence the manner in which subjects processed problems, distributed authority, and allocated rewards.

LEADERSHIP AND GENDER IN A SIMULATED ORGANIZATION

Terborg and Ilgen (1975) used attribution theory, equity theory, and sex-role stereotyping to explain the results of an investigation of occupational sex discrimination. Male management students (N=36) who participated in an engineering-oriented in-basket game differentiated in a stereotypical way between men and women in initial and second-year salaries and task assignments. Terborg and Ilgen suggested that the existence of pervasive and persistent sex-role stereotypes may present a critical barrier to women in organizations, especially in the male-dominated fields of management and science.

Schein (1973, 1975) provided two illustrations of the stereotyping concept, observing both male and female executives to perceive successful middle managers as possessing those characteristics, attitudes, and temperaments more commonly associated with men in general than with women in general. There is other evidence to support this concept. Several studies (Cecil, Paul, & Olins, 1973; Cohen & Butler, 1975; Hamner, Kim, Baird, & Bigoness, 1974) have indicated differential evaluation of males and females. Other investigations (Bartol & Butterfield, 1976; Petty & Lee, 1975; Schneier, 1978) have focused on differences in the perception of males and females as leaders.

Unlike Taynor and Deaux (1973) and Deaux and Emswiller (1974), however, Terborg and Ilgen found no evidence of differential attributions along the dimensions of ability versus effort; i.e., their subjects did not attribute a woman's successful performance in a masculine sex-typed

occupation to luck or low task difficulty. Terborg and Ilgen also found no evidence to support O'Leary's (1974) hypothesis under equity theory that women would receive greater rewards than men because they would be perceived as operating under the involuntary constraints of gender-related stereotypes.

The present investigation was a replication and partial extension of Terborg and Ilgen's work. It was an attempt to investigate explicitly, in a multivariate context, the relationship between stereotyping, equity theory, and attribution theory. The dimensions of leader performance, general satisfaction, reward allocation, skill attribution, and role comfort were explored in a simulated organizational context (i.e., through the use of a modified in-basket procedure) under analogue conditions (i.e., through the use of volunteer undergraduate student subjects). The focus was on the behavior of both male and female students whose decisions were assumed to be analogous to those of real organizational leaders. Of particular interest was the behavior of the student/leader in regard to subordinate managers as a function of gender and performance.

In light of Terborg and Ilgen's results, two predictions were made on the basis of Schein's (1973, 1975) investigations of managerial stereotypes: (1) female evaluators would delegate more problems than would male evaluators; and (b) more problems would be delegated to a male manager than to a female manager.

Although Terborg and Ilgen's results did not support either the ability or effort attribution hypothesis or the involuntary constraint hypothesis,

data were collected to test these theoretical issues as well as to explore questions of the relationship of merit allocation and performance, preference for one's own gender in the allocation of rewards, role comfort and satisfaction in the stereotypically masculine supervisory task, and the relationship of productivity and gender.

METHOD

Subjects

One hundred twenty Undergraduate psychology students from a departmental subject pool volunteered for the investigation and received partial course credit for their participation. Sixty subjects were male and sixty were female.

Task

A modified in-basket task was used to simulate administrative decision-making in the field of aeronautical engineering. On the basis of pilot data, the in-basket task was judged to be stereotypically masculine or male-oriented in nature.

Each student was assigned the position of "Director of Development" for a simulated Defense Department organization whose mission was to develop technology for a new Air Force jet. Students were told that the personality attributes of a small, random sample of government employees had been programmed into the departmental computer and that the investigator would be able to program each student's managerial input and to elicit life-like problem solving behavior from the group which "existed" within the computer.

The simulated organizational hierarchy featured a modified dual deputy system, in which two equally qualified "Assistant Directors" shared authority with no specified demarcation of duties. They were said to represent randomly selected government employees: a female called Karen Thomas and a male called Charles Hardy. They were described in such a way as to preclude confounding sex with such factors as family responsibility, age, or experience.

Students ("Directors") were told that the speed and quality of their responses to the in-basket tasks would be compared to a nationwide university sample. Directors could solve each of 24 criterion problems personally or by delegation to a specified Assistant Director. Directors were instructed to delegate problems requiring knowledge beyond their experience. Instructions emphasized that the task was an exercise in administrative procedures, with no requirement for technical knowledge.

Deceptive feedback was provided periodically. Organizational performance and performance by the Assistant Directors were shown on pre-prepared computer printouts. Three feedback conditions existed: 1) Charles Hardy out-performed Karen Thomas; 2) Karen Thomas out-performed Charles Hardy; and 3) both performed equally. In all cases, organizational performance was depicted as slightly above average.

Procedures

Students passed through an anteroom to enter the laboratory. A sign with the words "PDP-8 Terminal" was posted on the door of the anteroom, and inside were data processing paraphernalia. "Computer noises", timed to

coincide with the activities of the investigator, were generated from the room to foster the impression that a computer was in use.

After completion of a practice problem, each student completed 24 criterion problems. For each problem, students blackened spaces on a data processing card in order to answer a series of management-related questions. Then students indicated whether or not they preferred to solve the problem personally (if so, they chose from options concerning communication style, general strategy, etc.) or to delegate it to a specified subordinate. Also, the time required to solve the problem was recorded. When the student had completed each third of the problems, the experimenter collected the cards, ostensibly fed then to the computer, and gave each student a pre-prepared printout which indicated one of the feedback conditions. Students completed attitude surveys upon receipt of the final printout.

Variables

The basic experimental design was a 2 X 3 MANOVA. Independent variables were sex of student and feedback condition (male-superior, equal performance, or female-superior). Equal numbers of male and female students were assigned randomly to the feedback conditions.

There were eight dependent variables. Productivity was defined by time allocation, i.e., time required to process the eight most difficult problems minus that required to process the eight least difficult. Problem difficulty had been assessed previously by a panel of persons with organizational experience. Three 7-point semantic differential scales were used to measure role comfort (comfort in position as Director), skill

attribution to the female subordinate, and skill attribution to the male subordinate. Role satisfaction in the leadership position was measured by the Work Scale of the Job Descriptive Index (JDI) (Smith, Kendall, & Hulin, 1969).

The merit raise dependent variable was assessed on a forced-choice scale. Students indicated which Assistant Director they preferred for promotion, and apportioned a $100 per month merit raise between both. The subordinate promoted was required to receive at least $51. This ipsitive procedure allowed direct calculation of the degree of preference for the promotee, although the amount of merit raise allocated to the female subordinate was the variable of particular interest. The number of problems delegated to a subordinate and the number of promotions awarded to the male versus the female subordinate were the remaining variables.

RESULTS

Means and standard deviations for feedback condition, subject sex, and seven dependent variables are presented in Table 1. The results of the MANOVA are summarized in Table 2. The correlation matrix for seven dependent variables is shown in Table 3.

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Insert Tables 1, 2, and 3 about here

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A main effect was found for feedback condition but not for sex of subject. The multivariate analysis of problem delegation did not support the prediction that females would delegate more problems to subordinates than would males. Student-leaders also did not delegate more problems to male subordinates than to females when both performed equally {$F(1,39)=0.42$,ns}. The MANOVA indicated a general tendency to attribute perceived success to skill, regardless of subordinate sex.

The significant feedback effect in the merit raise analysis supported the notion from basic equity theory that subordinates would be rewarded as a function of their perceived contributions. Analysis of simple main effects indicated that female student-leaders awarded larger merit raises to female subordinates than did male student-leaders in the male-superior feedback condition. Analysis of the position comfort and satisfaction measures did not reveal significant differences between males and females. However, Tukey's HSD procedure performed on the productivity (time allocation) data indicated that subjects of both sexes spent proportionately more time on difficult/important problems in the male-superior condition than in either the equal performance or female-superior condition.

A split-plot analysis of variance was performed in addition to the MANOVA in order to investigate more keenly whether performance was attributed to luck or skill. There was a main effect for feedback {$F(2,114)=6.41$,$p<.01$} and a feedback X subordinate sex interaction {$F(2,114=110.84$,$p<.0001$}. Planned comparison tests confirmed that success, regardless of subordinate gender, was attributed to skill and that differences in skill attributions

to male subordinates were significant between each pair of feedback conditions. However, for female subordinates, there was no difference between the equal performance and female-superior conditions. Thus, there were no differences in the skill ratings of females who outperformed the male and those whose performance equaled that of the male.

Under equal performance conditions, males tended to promote the male subordinate more often than the female {$X^2(1)=5.00, p<.03$}. Also, subjects of both sexes tended to assign more of the difficult/important problems to the male subordinate than to the female {$X^2(2)=10.00, p<.01$ for male subjects and $X^2(2)=9.10, p<.02$ for female subjects} and favored the female subordinate for simple/unimportant problems {$X^2(2)=8.10, p<.02$ for male subjects and $X^2(2)=20.10, p<.01$ for female subjects}.

DISCUSSION

Equity theory was supported by the results of this investigation: Allocation of organizational reward was dependent on perceived organizational input. Further, productivity was found not to be a function of evaluator gender. With few exceptions, discriminatory evaluation behavior which might be explained by theoretical statements of sex-role stereotyping, ability or effort attribution, and involuntary constraint were not found. The exceptions, however, may be the most important results of this investigation.

If the experimental conditions may be considered to be analogous to real organizational conditions, males may promote female subordinates less often than male subordinates. Further, female subordinates may be given

the opportunity to tackle only relatively trivial tasks, leaving the more important tasks for their male colleagues. Those who work in unimportant/simple areas are less likely to be perceived as making significant contributions to the organization than are those who work on important/difficult tasks. Since our findings indicate that promotions and other rewards are generally dispensed to those individuals seen as helping the organization attain its most critical goals, a manager is likely to feel that women have comparatively little potential for increased responsibility and advancement as a perhaps unacknowledged consequence of the manager's own delegation decisions.

In another subtle indication of stereotypic bias, student-leaders of both genders allocated a larger proportion of time to difficult/important problems than to simple/unimportant problems in the male-superior condition than in the other experimental conditions. A possible explanation is that stereotype confirmation led to relatively more appropriate managerial behavior (i.e., concentration on the important rather than the trivial issues). The effect of disconfirming stereotypic preconceptions may have been to distract the student-leaders from their managerial task or to add ambiguity by introducing unsettling questions about their subordinates.

The manner in which the student-executives processed the problems, the kinds of problems delegated to particular subordinates, and the pattern of promotion implied the presence of a managerial stereotype effect not tapped by the major analyses. These findings are consistent, nonetheless, with the task-assignment findings of Terborg and Ilgen (1975).

Of the concepts tested, stereotyping appeared to be the most fundamental, mediating perceptions of organizational contribution (and subsequent reward allocation) regardless of the nature of skill attributions. The stereotypic effects observed were largely of a subtle nature. People may espouse equality between men and women, but nonetheless, display behaviors which belie deep-seated discriminatory attitudes, attitudes which result from stereotypes of the appropriateness of particular tasks and roles for men and for women.

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TABLE 1

MEANS AND STANDARD DEVIATIONS

Feedback Condition	Male-Superior		Equal Performance		Female-Superior	
Subject Sex	Male	Female	Male	Female	Male	Female
Problem Delegation	13.10 (1.09)	13.05 (2.33)	13.25 (1.87)	11.80 (2.33)	13.15 (2.18)	12.50 (1.88)
Skill Female	3.30 (1.34)	3.90 (1.64)	5.15 (0.98)	5.40 (1.23)	5.90 (1.02)	6.00 (1.21)
Skill Male	6.25 (0.79)	6.30 (1.08)	5.50 (1.95)	5.60 (1.05)	3.35 (1.31)	3.65 (1.53)
Merit Raise To Female	23.20 (14.71)	32.95 (13.93)	45.65 (10.01)	48.95 (7.76)	72.15 (11.79)	66.75 (10.95)
Role Satisfaction	29.75 (10.80)	30.95 (9.61)	33.00 (6.27)	31.21 (8.47)	31.45 (8.21)	29.70 (11.88)
Role Comfort	4.75 (1.65)	4.65 (1.50)	4.70 (1.17)	4.90 (1.41)	4.46 (1.47)	4.80 (1.91)
Productivity	15.25 (4.49)	14.25 (4.30)	12.15 (5.16)	10.85 (3.98)	11.70 (5.79)	11.70 (5.07)

Standard deviations are in parentheses.

TABLE 2

MULTIVARIATE ANALYSIS OF VARIANCE:
EFFECTS OF SEX OF SUBJECT AND FEEDBACK CONDITION

Dependent Variable	Sex (s)	Feedback (FB)	S X FB
Problem Delegation	3.82	0.75	1.22
Skill Attribution to Female Subordinate	2.11	36.85***	0.51
Skill Attribution to Male Subordinate	0.53	65.21***	0.14
Amount of Merit Raise Awarded to Female Subordinate	1.42	124.40***	4.19*
Role Satisfaction	0.22	0.42	0.35
Role Comfort	0.13	0.06	0.13
Productivity	0.81	6.08**	0.21
Multivariate F	1.28	17.50**	0.88

* p .05.
** p .01.
*** p .0001.

TABLE 3

CORRELATIONS FOR THE DEPENDENT VARIABLES IN THE MANOVA

	Problem Delegation	Skill Female	Skill Male	Merit Raise	Work Scale	Comfort	Productivity
Problem Delegation	1.00	-0.06	0.00	-0.04	-0.15	-0.15	0.00
Skill Female		1.00	0.19*	0.38**	0.13	0.13	0.21*
Skill Male			1.00	-0.30**	-0.19*	0.05	0.10
Merit Raise to Female				1.00	0.07	0.01	0.03
Role Satisfaction					1.00	0.46**	0.14
Role Comfort						1.00	0.14
Productivity							1.00

* p .05.
** p .01.